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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/005,296	12/05/2001	Sebastian John Savory	537-1060	8100
23644	7590	05/05/2004	EXAMINER	
BARNES & THORNBURG P.O. BOX 2786 CHICAGO, IL 60690-2786			NGUYEN, TU T	
			ART UNIT	PAPER NUMBER
			2877	

DATE MAILED: 05/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/005,296

Applicant(s)

SAVORY, SEBASTIAN JOHN

Examiner

Tu T. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) 19-23 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9, 10, 17 and 18 is/are allowed.
- 6) ☒ Claim(s) 1-3, 8, 11 and 12 is/are rejected.
- 7) ☒ Claim(s) 4-7 and 13-16 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 December 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

Applicant's election with traverse of Group I (claims 1-18), filed on 03/19/2004 is acknowledged. The traversal is on the ground(s) that both groups of claims are to be classified in the same class and subclass. This is not found persuasive because

1) The first group of claims (1-18) is directed to a PMD compensator for compensation of PMD in Polarization Bit Interleaved (PBI) optical signal that comprises an apparatus for converting an optical signal into an electrical signal and an analyzer for analysing at least one spectral component, or at least two spectral components of the converted electrical signal. One spectral component has a frequency equal to half the frequency of the input bit stream. The frequency of the other spectral component is not equal to an integer multiple of half the frequency of the input bit stream.

2) The other group (claims 19-23) is directed to a Polarization Mode Dispersion (PMD) compensator for compensation of PMD in Polarization Bit interleaved (PBI) optical signals that comprises an apparatus for converting an optical signal into an electrical signal and an analyzer for analysing at least two spectral components of the converted electrical signal. The two spectral components are the DC signal and the signal at the frequency equal to the input bit rate.

Group I and Group II are classified in the same class and subclass. However, they have different structure and different operation. It requires two different searches.

The requirement is still deemed proper and is therefore made FINAL.

Information Disclosure Statement

The information disclosure statement filed 01/16/2004 fails to comply with 37 CFR 1.98(a)(1), which requires a list of all patents, publications, or other information submitted for consideration by the Office. It has been placed in the application file, but the information referred to therein has not been considered. The form PTO-1449 is missing.

Specification

The disclosure is objected to because of the following informalities:

Specification, page 1, lines 11,21, "whilst" should be changed to -- while --.

Drawings

Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3,8,11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi et al (Electronics Letters, IEE Stevenage, GB, Vol. 30, No. 4, 17 Feb 1994, XP006000245) **OR** Kikuchi (Journal Of Lightwave Technology, IEEE, NewYork, US, Vol. 19, No. 4, April 2001, XP001122603) in view of Fishman et al (6,330,375).

With respect to claims 1,11, Takahashi discloses a system for compensating PMD. The system comprises: a polarization controller (PC hereinafter) PC (fig 1), a birefringent element (PMF for PMD compensation, fig 1), a converter (fig 1), analyzer (detector in fig 1) and filters (fig 1) for selecting a frequency corresponding to the bit frequency.

Takahashi does not explicitly disclose "the polarization controller in dependence on the electrical signal power of the at least one spectral component". However, the claimed limitation would have been obvious in view of the teaching in column 2, second paragraph (the control signal for controlling the PC is proportional to the signal power ratio).

Kikuchi explicitly discloses all the limitations as claimed (see fig 1) except for "the polarization controller in dependence on the electrical signal power of the at least one spectral component". Fishman discloses the claimed limitation (signal 471 (fig 1) for

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controlling the PC 430 (fig 1) and teaching in column 4, lines 39-41). It would have been obvious to modify Kikuchi with the polarization controller in dependence on the electrical signal power of the at least one spectral component as taught by Fishman to make the system more efficiency.

With respect to claims 2,8,12, the claimed controlling the orientation of the signal entering the birefringent element so as to maximize the power of the at least one spectral component or choosing a desired bit frequency, i.e., 20 GHZ, absent any criticality, is considered to be the "preferred" or "optimum" factors. Therefore, it would have been obvious to modify the prior arts with the above claimed limitations to obtain a desired result. The modification involves only routine skill in the art.

With respect to claim 3, all the cited prior arts disclose the claimed filter (refer to the discussion in claim 1 above).

Allowable Subject Matter

Claims 9-10,17-18 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Prior arts of record does not disclose an analyser for analysing at least two selected spectral components of an electrical signal, wherein the orientation of a signal entering the birefringent element is controlled by the polarization controller in

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dependence on the electrical signal powers of the at least two spectral components, a first spectral component having a frequency corresponding to the bit frequency of the two bit streams which form the bit interleaved signal, and a second spectral component having a frequency not equal to an integer multiple of the bit frequency of the two bit streams which form the bit interleaved signal as disclosed in claims 9, 17.

Claims 4-7, 13-16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Refer to discussion above in claim 9 for the statement of reasons for the indication of allowable subject matter

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tu T. Nguyen whose telephone number is (571) 272-2424. The examiner can normally be reached on T-F 7:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Tu T. Nguyen', with a long, sweeping horizontal line extending to the right.

Tu T. Nguyen
Primary Examiner
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05/01/2004